CLAIMS

1. A method for compressing a group of basic media data units, the method comprising the steps of:

    (a) receiving the group of basic media data units;

    (b) for each basic media data unit of the group performing the steps of:

        (b1) partially decoding at least a portion of the basic media data unit to provide a plurality of amplitude/runlength pairs;

        (b2) determining whether to reduce the size of the basic media data unit in view of a predefined relationship between a predefined compression ratio (PCRA) and a residual ratio (RR);

        (b3) reducing the size of the basic media data unit, in view of the determination, by changing the values of at least some of the amplitudes; and

        (b4) partially encoding the basic media data unit.

2. The method of claim 1 wherein the amplitude/runlength pairs represent DCT coefficients.

3. The method of claim 1 wherein the step of reducing comprises mapping low value amplitudes to zero.

4. The method of claim 3 wherein the absolute value of the low-value amplitudes equals one.

5. The method of claim 1 wherein the step of reducing comprises quantizing the amplitudes.

6.   The method of claim 5 wherein each basic media data unit is characterized by a first quantization scale, and wherein the step of reducing comprises quantizing the amplitudes with a second quantization scale that is higher than the first quantization scale.

7.   The method of claim 5 wherein the second quantization scale substantially equals a product of the first quantization scale and a positive integer P.

8.   The method of claim 6 wherein amplitudes that range between -(P/2) to (P/2) are mapped to zero.

9.   The method of claim 7 wherein P equals 2.

10.   The method of claim 1 wherein the basic media data unit is selected from the list consisting of:
    a macroblock;
    a slice;
    a picture;
    a sequence of audio signals;
    a sequence of audio visual signals;
    a sequence of data; and
    a stream containing a plurality of streams.

11.   The method of claim 10 wherein the group of basic media data units is selected from the list consisting of:
    slice;
    picture;
    group of pictures;

a sequence of audio signals;

a sequence of audio visual signals;

a sequence of data; and

a stream containing a plurality of streams.

12. The method of claim 1 wherein a basic media data unit is an MPEG compliant video data.

13. The method of claim 1 wherein the compression ratio reflects the ratio between the size of the group of basic data visual units before the size reduction and a target size of group of basic data visual units after the size reduction.

14. The method of claim 13 wherein the residual ratio (RR) reflects a relationship between (i) an aggregate size (RSG) of basic data visual units of the group that did not undergo step (b), (ii) the target size (TG) of the group of basic data visual units, and (iii) the aggregate size (RTG) of basic data visual units of that did undergo step (b).

15. The method of claim 14 wherein RR = RSG/(TG-RTG).

16. The method of claim 14 wherein RR = (RG-RSG)/RTG

17. The method of claim 1 wherein reducing a visual data basic unit if RR > PCRA.

18. The method of claim 1 wherein the residual ratio (RR) reflects a relationship between (i) an aggregate size (RSG(S)) of basic data visual units of a sub group SG(S) of the group that did not undergo step (b), (ii)

the size (TG(S)) of a target sub-group out of the group of basic data visual units, and (iii) the aggregate size (RTG(S)) of basic data visual units of a subgroup that did undergo step (b).

19.   The method of claim 17 wherein RR = RSG(S)/(TG(S) – RTG(S)).

20.   The method of claim 17 wherein TG(S) is responsive to a difference (RES) between a previous target sub group size TG(S-1) and between an aggregate size (RTG(S-1)) of basic data visual units belonging to the previous sub group.

21.   The method of claim 17 wherein the sub group being selected from the list consisting of :
    a slice;
    a plurality of slices;
    a picture;
    a plurality of pictures;
    a sequence of audio signals;
    a sequence of audio visual signals;
    a sequence of data; and
    a stream containing a plurality of streams.

22.   A method for compressing a group of basic media data units, the method comprising the steps of:
    (a)   receiving the group of basic media data units;
    (b)   for each basic media data unit of the group performing the steps of:
        (b1)   partially decoding at least a portion of the basic media data;

(b2)   determining whether to reduce the size of the basic media data unit of the received block in view of a predefined relationship between a predefined compression ratio (PCRA) and a residual ratio (RR);

(b3)   reducing, in view of the determination, the size of a basic media data unit such that an optimal reduction to quality degradation of the basic media data block is achieved; and

(b4)   encoding the basic media data unit.

23.   The method of claim 22 wherein the basic media data unit being represented by a plurality of amplitude/runlength pairs, and wherein the step of reducing comprising reducing the amount of amplitude/runlength pairs.

24.   The method of claim 23 wherein the amplitude/runlength pairs represent DCT coefficients.

25.   The method of claim 23 wherein the step of reducing comprises mapping low value amplitudes to zero.

26.   The method of claim 25 wherein the absolute value of low-value amplitudes equal one.

27.   The method of claim 22 wherein the step of reducing comprises quantizing the basic media data unit.

28.   The method of claim 27 wherein each basic media data unit is characterized by a first quantization scale, and wherein the step of reducing comprises quantizing the basic media data unit with a second quantization scale that is higher than the first quantization scale.

29. The method of claim 28 wherein the second quantization scale substantially equals a product of the first quantization scale and a positive integer P.

30. The method of claim 29 wherein values representing the basic media data unit that range between -(P/2) to (P/2) are mapped to zero.

31. The method of claim 30 wherein P equals 2.

32. The method of claim 22 wherein the basic media data unit is selected from the list consisting of:
    a macroblock;
    a slice;
    a picture;
    a sequence of audio signals;
    a sequence of audio visual signals;
    a sequence of data; and
    a stream containing a plurality of streams.

33. The method of claim 32 wherein the group of basic media data units is selected from the list consisting of:
    a slice;
    a picture;
    a group of pictures;
    a macroblock;
    a sequence of audio signals;
    a sequence of audio visual signals;

a sequence of data; and

a stream containing a plurality of streams.

34. The method of claim 22 wherein a basic media data unit is an MPEG compliant video data.

35. The method of claim 22 wherein the compression ratio reflects the ratio between the size of the group of basic data visual units before the size reduction and a target size of group of basic data visual units after the size reduction.

36. The method of claim 35 wherein the residual ratio (RR) reflects a relationship between (i) an aggregate size (RSG) of basic data visual units of the group that did not undergo step (b), (ii) the target size (TG) of the group of basic data visual units, and (iii) the aggregate size (RTG) of basic data visual units of that did undergo step (b).

37. The method of claim 36 wherein $RR = RSG/(TG-RTG)$.

38. The method of claim 36 wherein $RR = (RG-RSG)/RTG$

39. The method of claim 22 wherein reducing a visual data basic unit if $RR > PCRA$.

40. The method of claim 22 wherein the residual ratio (RR) reflects a relationship between (i) an aggregate size (RSG(S)) of basic data visual units of a sub group SG(S) of the group that did not undergo step (b), (ii) the size (TG(S)) of a target sub-group out of the group of basic data visual

units, and (iii) the aggregate size (RTG(S)) of basic data visual units of a subgroup that did undergo step (b).

41.   The method of claim 40 wherein $RR = RSG(S)/(TG(S) - RTG(S))$.

42.   The method of claim 40 wherein TG(S) is responsive to a difference (RES) between a previous target sub group size TG(S-1) and between an aggregate size (RTG(S-1)) of basic data visual units belonging to the previous sub group.

43.   The method of claim 40 wherein the sub group being selected from the list consisting of:

a macroblock;

a slice;

a picture;

a sequence of audio signals;

a sequence of audio visual signals;

a sequence of data; and

a stream containing a plurality of streams.